VOLUME 19 NOS. 1–4 SPECIAL ISSUE

PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON LATERITE

edited by
Y. OGURA
Kogai-Shigen Kenkyushio, Resources Research Institute, Tsukuba, Ibaraki, Japan

and

I. DOI
Sumitomo Metal Mining Co. Ltd., Minato, Tokyo, Japan

CONTENTS

Preface 1
Opening Address 3
Nickel: an industry in transition
M.O. Pearce (Toronto, Ont., Canada) 5
Development of ferro-nickel smelting from laterite in Japan
K. Ishii (Tokyo, Japan) 15
Attempts at the beneficiation of lateritic nickel ore
J. Onodera, T. Inoue and T. Imaizumi (Tokyo, Japan) 25
Bulk and surface characterization of laterite by various physico-chemical methods
R. Sen, K. Takahashi, R. Fortin, D.J. Spottiswood and B. Yarar (Golden, Colo., U.S.A.) 43
Fundamental study on the flotation of garnierite using chelating reagents and anionic collectors
Y. Nakahiro (Kyoto, Japan), H. Saburi (Tokyo, Japan) and T. Wakamatsu (Kyoto, Japan) ... 69
Mineralogical properties and fundamental mineral processing behaviour of the chromite contained in laterite leach residue
S. Owada and T. Harada (Tokyo, Japan) 77
Development and mine operation at Rio Tuba nickel mine
H. Hirai, K. Katamura (Tokyo, Japan), F.P. Mamaclay and T. Fujimura (Legaspi, Philippines) 99
Pelletizing of nickel residue from laterite for direct reduction process
N. Imanishi, R. Watanabe, M. Onoda and M. Shirieda (Kobe, Japan) 115
Recovery and utilization of iron resources contained in laterite nickel leached residue
S. Ema (Kanagawa, Japan) and T. Harada (Tokyo, Japan) 127
Study on the use of laterites as an iron-making material – Research at Nippon Steel Corporation
S. Takagi and T. Furui (Tokyo, Japan) 145
Selective removal of iron oxide from laterite by sulphurization and chlorination
K. Nagata (Tokyo, Japan) and P. Bolsaitis (Cambridge, Mass., U.S.A.) 157
Direct reduction of garnierite ore for production of ferro-nickel with a rotary kiln at Nippon Yakin Kogyo Co., Ltd., Oheyama Works
T. Watanabe, S. Ono, H. Arai and T. Matsumori (Kawasaki, Japan) 173
Production of Fe-Ni by the rotary kiln-electric furnace process at Hyuga Smelter
T. Ogura, K. Kuwayama, A. Ono and Y. Yamada (Miyazaki, Japan) 189
P.T. INCO's Indonesian nickel project: an updating
J.D. Guiry and A.D. Dalvi (Sulawesi, Indonesia) 199
A process for direct stainless steel production from nickel laterite and chromium ores
K. Yamada and T. Hiyama (Hachinohe, Japan) 215
The MINPRO–PAMCO nickel segregation process
A.S. Ericson, J. Svensson (Stora, Sweden) and K. Ishii (Tokyo, Japan) 223

Activity measurements in the oxide solid solutions of NiO–MgO and NiO–MgO–SiO_2 systems in the temperature range between 1073 and 1273 K
Y. Shirane, S. Nabika, S. Sakamoto and I. Nakashima (Kumamoto, Japan) 237
Studies on solid state reactions in a NiO–MgO–SiO_2 system
Y. Shirane (Kumamoto, Japan), K. Morinaga and T. Yanagase (Fukuoka, Japan) 253
Improvements in the Greenvale operations
J.G. Reid (Townsville, Qld., Australia) 263
Dissolution of nickel and magnesium from garnierite ore in an acid solution
R. Hirasawa and H. Horita (Toyama, Japan) 273
Dilute sulphuric-acid leaching of garnierite ore after magnetic-roasting the ore mixed with iron powder
M. Kawahara, T. Mitsuo, Y. Shiran and Y. Mitsue (Kumamoto, Japan) 285
Some hydrometallurgical studies on Indonesian low-grade nickel laterite
K. Mitsutomi, D. Atmowidjojo and Yusuf (Bandung, Indonesia) 297
Development of a new cobalt recovery process at the Surigao Nickel Refinery
A.M. Ellar and C.G. Liwat (Surigao City, Philippines) 311